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and broad ; endocarp shining-white, callose, delicately reticulated. — Pansamalá forest, alt. 3,800 feet, Sept., 1886, April, 1887. (Ex Pl. cit. 751.)—Freiherr von Türckheim's numerous specimens, representing all stages of growth, show no tendency toward lobing of leaves. The originals of Dr. Watson's description, sparingly collected by him in the *tierra caliente*, are somewhat less robust plants, and the leaves have a more distinctly continuous intermarginal vein ; the flowers were not described, and in the specimens seen are insufficient for examination.

Asplenium Vera-pax. (§ *Diplazium*.)—Stipes tufted from a short rhizome with a few black scales toward base, 18 inches long : fronds subcoriaceous, glabrous, pale beneath, punctate, ovate-lanceolate, 12 inches long, lower half pinnate, the upper cleft or lobed and tapering to an elongated serrate apex : rhachis sulcate on face, angled by decurrent pinnæ, bearing in their axils a gemmule covered with minute scales : pinnæ 7–8 to a side, oblong to oblong-lanceolate, acuminate, distantly serrulate, base truncate on upper side and reduced on lower ; basal pair stalked, produced, $4\frac{1}{4}$ inches long, 1 inch broad ; others a third to a half smaller, adnate, confluent above : veins single, erecto-patent, mostly 1–3-branched, the lowest anterior veinlet soriferous : sori 15–23 to a side, 6–8 lines long, falling short of both midrib and margin, diplazoid chiefly below middle of pinnæ. (Plate II.)—Pansamalá forest, Dept. Alta Verapaz, alt. 4,000 feet, Sept., 1886. (Ex Pl. cit. 850.)

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Notes on Western Umbelliferae. I.

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In the following notes those specific names are used which are commonly known to collectors.

Podosciadium Gray has been rather remarkable on account of its poor representation in herbaria, and the restricted range of its species. Curiously enough, both of these things have come from a strange confounding of its species with those of *Carum*, and herbaria are found to be richer in these forms than their labels show, and their range has been very materially extended.

P. Bolanderi Gray has been badly confused with *Carum Gairdneri* and *C. Oreganum* by collectors, and under these names it is found in many herbaria. A glance at the conspicuous scarious-bracted involucels, broadly concave seed-face, and numerous oil-ducts, should at once distinguish it from any species of *Carum*. It is an interesting fact that a species thought to be so local is now found somewhat widely distributed through California and Oregon, having heretofore concealed its identity under a general similarity of habit to *Carum*. Its reported stations are now as follows: California, Mariposa Trail, Yosemite (*Bolander* 4898, in 1866 and 1873), Big Meadows, Plumas county (*Mrs. R. M. Austin*, in 1880), Emigrant Gap (*M. E. Jones* 3603, in 1882); Oregon, Union county (*Cusick* 1097, in 1883), Stein's Mountain (*Howell*, in 1885).

P. Californicum Gray, thought to be known only from the single collection of Bigelow, made at Knight's Ferry, Stanislaus county, California, in 1853, turns up in the collection of G. R. Vasey (no. 227) from Santa Lucia Mountains, California, July, 1880, having been distributed as *Carum Kelloggii*.

Musenium Nutt. seems to be British American, extending into the United States along the Rocky Mountains. Few specimens have been collected within our borders, and hence herbarium material is very scanty. Professor Macoun has discovered *M. divaricatum* and *M. trachyspermum* to be quite abundant on the great plains of the Northwest Territory, but *M. tenuifolium* still remains very poorly known, mature fruit of it not yet having been collected.

Pencedanum Canbyi, n. sp. Apparently acaulescent, but with a short underground stem from a thick more or less elongated rootstock which ends in a globose tuber half to an inch in diameter, glabrous, 3 to 8 inches high: leaves ternate-pinnatifid or bipinnate, the ultimate segments small, with 3 to 5 linear-oblong lobes: umbel equally 5 to 10-rayed, with no involucre, and involucels of narrowly linear scarious-margined bractlets; rays 1 or 2 inches long; pedicels 4 to 6 lines long; flowers white: fruit ovate-oblong, glabrous, 4 lines long, $2\frac{1}{2}$ lines broad, with wings about half as broad as body, and filiform dorsal and intermediate ribs; oil tubes solitary in the intervals (the lateral intervals often with 1 or 2 accessory but shorter ones), 2 to 4 on the commissural side.—High ridges, E. Oregon (*Howell*, in April, 1880, and

May, 1882, as no. 67); Union county (*Cusick* 1010, in 1882 and 1884).—This species has been referred to *P. Nevadense*, as several other species have been, but always with a doubt. In Howell's distribution it is labeled *P. dasycarpum*. It has been too often collected in its early condition, before either fruit or leaves had matured, and in this stage has been very puzzling. Mature fruit of *Cusick's* collecting, in Canby's herbarium, has enabled us to characterize it as quite a distinct species. It belongs to that tuberous-rooted group of which *P. farinosum* and *P. Cous* are representatives.

***Peucedanum Sandbergii*, n. sp.** Caulescent, branching at base, an inch or two to a foot high, from an elongated comparatively slender root, rough puberulent: petioles wholly inflated, with a very conspicuous white-scarious margin; leaves ternately or pinnately dissected, the ultimate segments very short linear: umbel very unequally 6 to 15-rayed, with no involucre, and involucels of distinct linear-lanceolate bractlets; rays 1 to 4 inches long; pedicels a line or two long; flowers bright yellow: fruit ovate, puberulent, 2 to $2\frac{1}{2}$ lines long, $1\frac{1}{2}$ lines broad, with very narrow wings, and filiform dorsal and intermediate ribs; oil-tubes 4 to 5 in the intervals, 6 on the commissural side; seed-face plane.—Bare mountain tops, 5,000 feet altitude, along snow-drifts, Kootenai county, N. Idaho (*J. H. Sandberg* 47); Upper Marias Pass, 7,300 feet altitude, N. Montana (*W. M. Canby* 153); North and South Kootenai Passes, British Columbia (*Darwin* 876).—This very distinct alpine species is remarkable for its inflated petioles with very broad glistening scarious margins, which form the most conspicuous feature of the plant. The peduncles are short when the plant first blooms, rising but a few inches above the ground; but they rapidly elongate, becoming as much as a foot high. The fertile rays also are often very much elongated, becoming many times longer than the sterile rays.

Peucedanum Geyeri Watson still remains an almost unknown species, mature fruit not yet having been collected. The species is badly confused by collectors with *P. farinosum* Geyer. It seems to have been the habit of many to lay in a good stock of *P. farinosum* and then to label half of it *P. Geyeri*. Specimens of the latter species are very much to be desired.

Peucedanum nudicaule Nutt. This species was first reported by Bradbury and Nuttall from the "high plains, on the upper

part of the Missouri, Arkansas, and the Rocky Mountains," and also collected by Lewis and Douglas "on the Oregon." Since that time true *P. nudicaule* seems to have been lost sight of, until it has now turned up from its original range, in the collections of Canby and Tweedy. The former sends it from Montana and Dakota (no. 152); the latter from the National Park (no. 855). Forms referred to this species are common enough; but we have not yet seen true *P. nudicaule* away from its original range "on the head-waters of the Missouri, etc." If any one can supply fruiting specimens of the so-called *P. nudicaule*, which is said to extend as far eastward as Iowa, we would esteem it a favor.

Angelica arguta of Nuttall, reported by him from Vancouver Island, has not been collected since until discovered by Howell in 1882 at the base of Mt. Adams, Washington Territory, and distributed as *A. genuflexa*; and then in 1886, along Hood river, Oregon, by the same collector, where it had been collected by Henderson (no. 382), in 1884, and also distributed as *A. genuflexa*. A fruiting head of this species was also sent by Tweedy from the Cascade Mountains, Washington Territory, mixed with his *A. genuflexa*, no. 280. Curiously enough, last summer's exploration of Vancouver Island by Professor Macoun failed to reveal *A. arguta* in its original station, but discovered plenty of *A. genuflexa*.

Angelica Hendersoni, n. sp. Very stout, densely tomentose throughout, especially the whitened lower surfaces of the leaves and the inflorescence: leaves quinate then pinnate; leaflets thick, broadly ovate, 3 to 4 inches long, 2 to 3 inches broad, obtuse, serrate; umbels equally many-rayed, with no involucre, and involuclers of numerous linear-acuminate bractlets; rays 1 to 2 inches long; pedicels a line or less long; flowers white: fruit oblong, more or less pubescent, 3 lines long; dorsal and intermediate ribs prominent, lateral wings thick and corky, as broad as body; oil-tubes solitary in the intervals, 2 on the commissural side: seed deeply sulcate beneath the oil-tubes, with plane face.—Bluffs, moistened by sea spray, Ilwaco (Long Beach), Washington Territory, Aug. 5, 1885 (*Henderson* 2158).

Sanicula laciniata Hook. and Arn. is very much confused in herbaria with *S. bipinnatifida*, a good deal of *S. laciniata* having been distributed as *S. bipinnatifida*, as, for instance,

Pringle of 1882, and Jones 3149. The palmately parted leaves, spinosely pointed teeth and bractlets, yellow flowers, less prickly fruit, and sulcate involute seed-face of *S. laciniata* are well set off against the pinnately parted leaves, merely acute or but slightly pointed teeth and bractlets, purple flowers, densely prickly fruit, and broadly concave centrally ridged seed-face of *S. bipinnatifida*. Nevin and Lyon, in their exploration of San Clemente Island (off S. California), collected *S. laciniata* with pedicelled fruit, but in every other respect perfectly typical.

***Sanicula Howellii*, n. sp.** Stems coarse, a foot or less high, more or less buried in the sand, bearing tufts of stout, elongated peduncles and leaves: leaves broad and palmately 3-lobed (often much modified by burial in the sand), the divisions rather sharply cut and toothed, the teeth mucronate-tipped: umbels unequally few-rayed, with involucre of a few leaf-like bracts, and involucels of very conspicuous bractlets, sometimes much exceeding the large globose heads of fruit: flowers yellow: fruit short-pedicellate, prickly all over, $1\frac{1}{2}$ to 2 lines long; oil-tubes irregular in number and distribution; seed-face concave.—Sandy shores, Tilamook Bay and Ocean Beach, Oregon, July 15, 1882 (*Howell* 16, *Henderson* 1584); also on Beacon Hill, Victoria, Vancouver Island, May 5, 1887 (*Macoun* 5). This sea-coast species is most nearly related to *S. arctopoides* H. & A., but the habitat of that species, its almost stemless habit, its leaves so laciniately dissected as to appear fringed, its fruit naked at base, and its nearly plane seed-face, are the more marked characters which serve to distinguish it from *S. Howellii*.

Phellopterus littoralis Schmidt, that curious sea-shore species, so much resembling *Cymopterus* in fruit, has had its range extended beyond the Oregon shores, where it has been collected by Cooper, Howell and Henderson, having been discovered by Professor Macoun in Vancouver Island in 1887.

Pimpinella apiodora Gray, of the Pacific slope, is a great desideratum in herbaria. It seems to be widely distributed enough, but very rarely collected. Specimens of it are very much desired by the writers.

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